

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (canceled).
2. (canceled).
3. (currently amended): ~~Active inductor circuit (L) according to claim 1,~~ An active inductor circuit comprising:  
first and second inductor terminals for coupling to respective external terminals, said first and second inductor terminals being coupled to a first transconductance circuit;  
a second transconductance circuit;  
a feedback circuit;  
an output terminal of said first transconductance circuit being coupled to an input terminal of said second transconductance circuit;  
an output terminal of said second transconductance circuit being coupled to an input terminal of said first transconductance circuit via said feedback circuit; and  
a capacitor coupled between said output terminal of said first transconductance circuit and said second inductor terminal,

wherein said first transconductance circuit includes an inverter, a first resistor, and a second resistor, and

wherein said second transconductance circuit (~~gm2~~) includes an active device (~~MOS3~~) in series with a third resistor (~~R3~~).

4. (currently amended): ~~Active~~The active inductor circuit (~~L~~) according to claim 13, wherein said feedback circuit (~~fb~~) includes a fourth resistor (~~R4~~) in series with a fourth active device (~~MOS4~~).

5. (currently amended): ~~Active inductor circuit (L) according to claim 1~~An active inductor circuit comprising:

first and second inductor terminals for coupling to respective external terminals, said first and second inductor terminals being coupled to a first transconductance circuit;

a second transconductance circuit;

a feedback circuit;

an output terminal of said first transconductance circuit being coupled to an input terminal of said second transconductance circuit;

an output terminal of said second transconductance circuit being coupled to an input terminal of said first transconductance circuit via said feedback circuit; and

a capacitor coupled between said output terminal of said first transconductance circuit and said second inductor terminal,

wherein the feedback circuit (~~fb~~) linearises the relationship between a synthesised DC voltage between said first (~~T1~~) and second terminals (~~T2~~) and a DC output current through said second transconductance circuit (~~gm2~~).

6. (currently amended): ~~Active inductor circuit (L) according to claim 1~~ An active inductor circuit comprising:

first and second inductor terminals for coupling to respective external terminals, said first and second inductor terminals being coupled to a first transconductance circuit;

a second transconductance circuit;

a feedback circuit;

an output terminal of said first transconductance circuit being coupled to an input terminal of said second transconductance circuit;

an output terminal of said second transconductance circuit being coupled to an input terminal of said first transconductance circuit via said feedback circuit; and

a capacitor coupled between said output terminal of said first transconductance circuit and said second inductor terminal,

wherein the current through said second transconductance circuit is at least a factor 100 larger than the current through said first transconductance circuit and through said feedback circuit.

7. (currently amended): ~~Active inductor circuit (L) according to claim 1~~ An active inductor circuit comprising:

first and second inductor terminals for coupling to respective external terminals, said first and second inductor terminals being coupled to a first transconductance circuit;

a second transconductance circuit;

a feedback circuit;

an output terminal of said first transconductance circuit being coupled to an input terminal of said second transconductance circuit;

an output terminal of said second transconductance circuit being coupled to an input terminal of said first transconductance circuit via said feedback circuit; and

a capacitor coupled between said output terminal of said first transconductance circuit and said second inductor terminal,

wherein the equivalent inductance equals the capacitance value of said first capacitor  $(C1)$  divided by the product of the transconductance values of said first transconductance circuit  $(gm1)$  and said second transconductance circuit  $(gm2)$ .

8. (currently amended): ~~Active inductor circuit (L')~~ according to claim 1, An active inductor circuit comprising:

first and second inductor terminals for coupling to respective external terminals, said first and second inductor terminals being coupled to a first transconductance circuit;

a second transconductance circuit;

a feedback circuit;

an output terminal of said first transconductance circuit being coupled to an input terminal of said second transconductance circuit;

an output terminal of said second transconductance circuit being coupled to an input terminal of said first transconductance circuit via said feedback circuit; and  
a capacitor coupled between said output terminal of said first transconductance circuit and said second inductor terminal,

wherein said active inductor circuit further includes a third transconductance circuit ( $gm1'$ ), an output terminal ( $OUT1'$ ) of which is coupled to an input terminal of a fourth transconductance circuit ( $gm2'$ ) included in said active inductor circuit ( $L'$ ), and to a second capacitor ( $C2$ ), a second terminal of which is coupled to the first terminal ( $T1$ ) of said active inductor circuit ( $L'$ ), an output terminal ( $OUT2'$ ) of said fourth transconductance circuit ( $gm2'$ ) being coupled to an input terminal ( $IN1'$ ) of said third transconductance circuit ( $gm1'$ ) via a second feedback circuit ( $fb'$ ) of said active inductor circuit, said active inductor circuit ( $L'$ ) further including a first unidirectional device ( $D1$ ) coupled between said first terminal ( $T1$ ) and said second transconductance circuit ( $gm2$ ), said active inductor circuit ( $L'$ ) further including a second unidirectional device ( $D2$ ) coupled between said second terminal ( $T2$ ) and said fourth transconductance circuit ( $gm2'$ ).

9. (currently amended): An active inductor circuit ( $L'$ ) according to claim 8, wherein said second capacitor ( $C2$ ) is similar to said first capacitor ( $C1$ ), said third transconductance circuit ( $gm1'$ ) is similar to said first transconductance circuit ( $gm1$ ), said fourth transconductance circuit ( $gm2'$ ) is similar to said second transconductance circuit ( $gm2$ ), and said second feedback circuit ( $fb'$ ) is similar to said first feedback circuit ( $fb$ ).